

From: [Tony St Amant](#)
To: Scoping_Delta_Plan@Delta_Council
Subject: Scoping Comments
Date: Tuesday, January 25, 2011 9:04:06 AM
Attachments: [110125 Scoping Comments.docx](#)

Dear Ms. Macaulay,

I have attached my comments on the NOP for the Delta Plan. I would appreciate it if you could acknowledge receipt. Thanks.

Sincerely,

Tony St. Amant
Chico

Comments on EIR Scoping for

DELTA STEWARDSHIP COUNCIL NOTICE OF PREPARATION FOR DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE DELTA PLAN, December 9, 2010

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January 25, 2011

Context: The Delta Plan has the potential to seriously affect the lifestyles, economy, and ecology of the Sacramento Valley as revealed in the notice of preparation:

The EIR will evaluate potential effects on surface water and groundwater resources, such as those that occur within the Delta, the Delta watershed, and regions of the state that could be affected by the Delta Plan alternatives. . . . The potential for effects would be addressed within the Delta and on a regional and statewide basis.¹

The following comments relate primarily to one aspect of the Plan's potential effects: the potential effect on Sacramento Valley groundwater aquifers should additional surface water be considered for diversion from agricultural uses and groundwater be considered for backfilling the agricultural deficit or in the event that groundwater should be considered as a direct supplemental source for Delta needs.

1. Any water flow modification program must be based on good science. If that science does not exist, it should be incumbent on the proponents of the modification program to develop it and include skeptics in the process in such a way as to develop a common understanding of the hydrogeologic dynamics.

The simple rejoinder to this suggestion is that the job of developing a robust scientific approach is much too large and expensive for the timelines established for this EIR. The answer to that rejoinder is that the proponents of water flow modifications have had many years to develop a robust scientific approach, but they have done little to advance the science of assessing aquifer carrying capacity and health in the Sacramento Valley. The risks and cost of that failure should not fall on the shoulders of north state groundwater users and ecosystems.

2. Conjunctive water management has been proposed as a method of mitigating the potential adverse effects of integrating groundwater into traditional surface water applications. A recent investigation by the Glenn Colusa Irrigation District and the Natural Heritage Institute² has been proposed as a useful examination of conjunctive water management. It is not.

At best, the investigation is a seriously deficient baby step in the right direction. The shortcomings are significant and most of them are acknowledged in the investigation itself. See comments on the GCID-NHI investigation at the end of this document.

¹ Delta Stewardship Council Notice Of Preparation For Draft Environmental Impact Report For The Delta Plan, December 9, 2010, p. 27.

² Sacramento Valley Conjunctive Water Management Technical Investigation Modeling Report, prepared for the Glenn-Colusa Irrigation District and Natural Heritage Institute (CH2MHill & MBK Engineers), February 2010.

3. Many recent proposals for diverting agricultural surface water to other uses have proposed the concept of “voluntary water transfers between willing sellers and willing buyers,” which is a misleading over-simplification of the real scope and impact of the action.

If sold and transferred surface water is to be backfilled by increased pumping of groundwater, there is a potential for adversely affecting neighbors who may rely on groundwater for economic survival. Groundwater aquifers do not conform to property lines. Consequently, increased groundwater pumping has a potential for drawing down groundwater levels across property lines and requiring neighbors to take on the cost of deepening their wells without compensation from the surface water sale; the real cause of their problem and expense.

Reliable data needs to be developed on the potential depth and breadth of groundwater drawdown over time. Short-term localized effects have been studied and documented, but the effect of increased pumping over time has only been speculated. Yet, the impact over time is by far the most dangerous threat to aquifer and ecosystem health.

As well as the potential economic impact on distant groundwater users from increased pumping, there is a potential for environmental impact that has received only the most cursory conceptual examination. Surface water sold out of the area will no longer replenish the local aquifer as it does when it is used to water crops. Pumping groundwater to backfill surface water sent out of the area could result in an aquifer drawdown that could starve surface vegetation. Moreover, an aquifer void created by the pumping could draw off an increased amount of stream water in the recharge process, causing less tributary flow into the Sacramento River, damaging riparian vegetation and further exacerbating salmon spawning problems and downstream flow shortages. These phenomena need focused and detailed assessment before a long-term conjunctive management project is implemented.

4. Any program that proposes transferring water to dry southern areas wastes a significant amount of water that could be put to more efficient use in its native region.

Evaporation loss in transit is not the only inefficiency of transferring surface water south. Another example is the amount of irrigation water required to grow orchard crops. About twice the irrigation water is required in the southern San Joaquin Valley compared to the Sacramento Valley. This relationship exists because about half the water in the Sacramento Valley comes from rain, but virtually all of the water in the southern San Joaquin Valley must come from irrigation.

If agricultural markets need more of what is being produced in water-short areas, maybe the state and federal governments ought to be examining how to expand production in areas where the precious resource of water can be used most efficiently instead of leading an effort to use it less efficiently.

5. There is little logical rationale—except among massive water rights holders—for allowing water rights holders to profit from the sale of water.

Water rights do not equal water ownership. The water is owned by the people of the State of California and is granted for beneficial use to individuals and agencies. A more appropriate alternative approach—assuming an environmentally sound transfer program—would be to charge the receiving agencies the estimated fair market value for transferred water, place the proceeds in a fund administered by a public

executive agency, and allow claims against the fund to reimburse actual expenses incurred as a result of the water transfers.

In addition to claims for reimbursement of actual expenses caused by water transfers, the proceeds should be expected to pay the cost of administering the system. At a minimum, valid claims would include: (1) the cost differential to surface water users of pumping replacement groundwater; and (2) the cost differential to affected groundwater users of any expenses caused by the increased pumping. Public input should be solicited to ensure all potential categories of valid claims are identified before the program is implemented. Should the proceeds from the transfers not cover the cost of claims and program administration, the market value of the transferred water should be revised upward to cover the actual cost.

6. Comments on Sacramento Valley Conjunctive Water Management Technical Investigation Modeling Report, February 2010 follow (A copy was provided to GCID January 12, 2011).

Comments on

Sacramento Valley Conjunctive Water Management
Technical Investigation Modeling Report, February 2010

Overview. The subject investigation (Investigation) was prepared by CH2M HILL and MBK Engineers for the Glenn Colusa Irrigation District (GCID) and the Natural Heritage Institute (NHI).

The primary purpose of the Investigation was to examine how to integrate the operation of surface water and groundwater systems (conjunctive water management) for the purpose of enlarging water supplies for local and regional benefits and creating operational flexibility to contribute to ecologically friendly flows in the Sacramento and Feather Rivers and the Delta.³

By its own terms the Investigation does not present results appropriate for implementation of a conjunctive water management program without extensive additional analysis:

Analyses described herein should be considered a planning level analysis that tests the general viability of conjunctive water management strategies presented, and provides a general estimate of benefits that may be realized by implementation of these projects. However, *these evaluations will need to be significantly refined, both in specificity of infrastructure and operational protocols and response of the natural system to these operations, before a project of this type could be carried to the design phase.*⁴ (emphasis added)

Conclusion: Based on the Investigation's own self-evaluation it is insufficient to validate the safe operability of a conjunctive water management program in the Sacramento Valley.

³ Investigation Update, June 2010, which eliminated specific reference to "the Lower Tuscan Aquifer and related deep aquifers."
...

⁴ Investigation, February 2010, p. 14-1, Section 14, subsection 14.1, third paragraph.

Comments on the Surface Water Analysis

The model used for the surface water analysis was CalSim-II, a well-established model developed jointly by the federal Bureau of Reclamation (USBR) and the California Department of Water Resources (DWR). CalSim-II is a water flow model used to simulate California State Water Project (SWP) and Central Valley Project (CVP) operations, and while it has been used to model the estimated effects of climate change⁵, this Investigation did not use that capability.

Without consideration of climate change, the results of this Investigation include the implicit but unstated assumption that basic SWP/CVP water flows for the next 82 years will be as they were for the years 1922 through 2003.⁶ This is a significant shortcoming. DWR's position on the impact of climate change is that "*Historic hydrologic patterns* [like those used in this Investigation] *can no longer be solely relied upon to forecast the water future.*"⁷ (emphasis added)

Conclusion: Without integration of a climate change sensitivity analysis, the surface water analysis has no utility in conjunctive water management planning or decision-making for the Sacramento Valley. As currently crafted, the Investigation provides no level of confidence that the surface water analysis would be relevant for conditions other than those experienced during the period 1922-2003.

Comments on the Groundwater Analysis

The model used for the groundwater analysis appears to have been an adaptation of MicroFEM© version 3.60, an integrated groundwater modeling package developed in The Netherlands. Referred to as SacFEM, the model is described as optimized to cover over 5,955 miles of the Sacramento Valley Groundwater Basin. However, there is no mention of peer review or other independent validation for the model adaptation—an unacceptable shortcoming for a program proposal with such huge environmental and economic implications for the Sacramento Valley. Some critical areas of interest in a validation process would be model fidelity in the areas of:

- Replicating the internal flow mechanics of dissimilar aquifers, such as the Tehama Formation, the shallow unconfined Tuscan Formation, and the deeper fractured rock Tuscan Formation;
- Replicating any flow interaction between the upper and lower Tuscan Formations;
- Replicating aquifer recharge, including postulated foothill area recharge for the Tuscan Formation(s); and
- Revealing the potential long-term, cumulative, wide-area effects on aquifer levels of extended reliance on groundwater to supplement surface water shortfalls.

⁵ Using Future Climate Change to Support Water Resources Decision Making in California, California Climate Change Center, CA Department of Water Resources, May 2009.

⁶ The years 1922 through 2003 are the years of actual SWP/CVP water flow used by CalSim-II.

⁷ Managing an Uncertain Future: Climate Change Adaption Strategies, CA Department of Water Resources, October 2008, p. 2.

The importance of such validation is emphasized by the Investigation itself:

The distribution of aquifer properties across the Sacramento Valley is poorly understood. In certain areas with significant levels of groundwater production, the collection of aquifer test data, and the measurement of historic groundwater level trends in response to known groundwater production rates have provided valuable information on aquifer properties. However in the majority of the valley, these data are not available.⁸
(emphasis added)

If the results of any investigation are to be used as a basis for a long-term extraction commitment from Sacramento Valley aquifers, first there must be a consensus among state and federal agencies and the interested public that program projections are based on a reasonable representation of future probabilities.

Conclusion: The Investigation's groundwater analysis provides no more than an interesting starting point for the robust analysis that would be required for a high confidence conjunctive water management project.

Comments on Groundwater Management and Decision Criteria

While it is arguable that conjunctive use water management and decision criteria are beyond the technical scope of the Investigation, the subject is broached in Section 5, General Operational Scenario:

In some years, conditions in the Sacramento Valley may be so critically dry that Project pumping would be suspended altogether. For instance, if groundwater levels were already at levels of concern (according to county Basin Management Objectives or other standards), Project wells would be turned off and the Project would generate no new supplies under these conditions.⁹

The implications of this paragraph are profound and far reaching. Without a public management structure in control of the process, a conjunctive water management project would be a license for unrestricted groundwater pumping managed only by the entity doing the extraction. Response to concerns of others would be voluntary unless redressed through legal action at potentially great cost to the injured party. Because groundwater aquifers do not necessarily conform to local government boundaries there is no existing local public entity that could ensure aquifer safety across the Investigation area.

An example of what could happen without a public management structure in control of the process occurred in Butte County in 1994. Two agricultural water districts sold surface water to Southern California buyers and pumped groundwater to make up for it. Nearby wells went dry with their owners convinced that the cause was increased pumping by the water districts. The water districts never

⁸ Investigation, February 2010, Section 8, subsection 8.3.5, p. 8-11, first paragraph.

⁹ Investigation, February 2010, Section 5, subsection 5.1, p. 5-1, last paragraph.

accepted responsibility citing the relatively low precipitation that year as the cause.¹⁰ The controversy remains the basis of deep distrust 16 years later.

The point here is not to imply blame, but to emphasize that a succession of similar unresolved issues would be intolerable across the Sacramento Valley over time. The Investigation gives the example of county basin management objectives programs (BMO) as a solution to the management problem, but BMO programs fail on several accounts: (1) they are limited by county boundaries, which do not necessarily relate to aquifer hydrodynamics; (2) Glenn County exempts water districts from compliance with its BMO ordinance; (3) Butte County's BMO ordinance provides no binding enforcement mechanism; and (4) neither county ordinance deals with the potential issue of long-term aquifer depletion.¹¹

Conclusions: Safe and effective conjunctive water management for the Sacramento Valley requires a public executive authority that extends across local government boundaries. No such authority now exists.

¹⁰ At the time, Butte County had no water transfer or groundwater management ordinances in force.

¹¹ Of Sacramento Valley counties, Butte and Glenn Counties are the only ones known by the author to have BMO programs.